

**The University of Iowa  
Regent's Innovation Fund  
FY13**

**OVERVIEW**

The University of Iowa (UI) is requesting \$1,050,000 to strengthen our capacity to enhance technology transfer, commercialization, job creation and economic development in the State of Iowa. The UI research enterprise continues to attract large amounts of peer reviewed federal research funding and is an increasingly important asset critical for innovation and job creation that will position Iowa to be competitive in the global economy. The UI, along with the other Regents institutions, has been a strong partner with industry and government in transforming Iowa's economic development programs into an innovation driven model and recent progress in creating more synergy has proven highly productive. With continued state and private investment, we can continue to capitalize on these earlier investments to enhance our technology transfer capacity, while helping create significant growth in jobs in Iowa's targeted industry sectors as Iowa strives to compete in the global economy of the 21<sup>st</sup> century.

**PROPOSED APPROACH IN 2013**

The Regent's Innovation funds will allow the UI to continue to invest in high value intellectual property that derives from faculty research and enhances technology transfer and commercialization through the concerted efforts of our integrated model involving the Iowa Center for Enterprises (UI Research Park, the John Pappajohn Entrepreneurial Center (JPEC) and the UI Research Foundation). Our ultimate goal is to facilitate university-private sector partnerships in entrepreneurship and continue to create new companies in Iowa based upon UI technology. These funds will be used to support:

- Proof-of-concept funding of highly promising, but very early stage, technology from faculty inventors that has commercialization and licensing potential, following a careful vetting process. Eligible technologies will be critically vetted by review comprised of both internal and external experts.
- Comprehensive student and faculty entrepreneurial education and business support programs to help stimulate additional student interest in innovation and entrepreneurship post-graduation and connect students with faculty mentors to promote and sustain startup companies.
- Incremental infrastructure investment needed to support growing numbers of University startup and technology-based companies, including space and technical assistance.

**PROOF OF CONCEPT FUNDING**

**\$525,000**

Exciting discoveries from University research are, by definition, very early stage and require sustainable sources of funding to take nascent intellectual property to the point where private investment is viable. This gap between federal support and private support to move ideas towards commercialization has been termed the "valley of death". We plan to carefully invest a significant portion of the Regent's Innovation Fund to help sustain exciting research through the critical proof-of-concept phase, which if successful will position this technologies and ultimately start-up companies to compete effectively for private and federal SBIR/STTR funding. These funds are critical for:

- University-private sector collaborations for "proof-of-concept" support for the commercialization of UI- or Iowa-related intellectual property.

- Gap funding for early-stage technologies and startup companies based on UI- or Iowa- related intellectual property.
- University-private sector formation and development of startup companies in Iowa directly related to existing UI- or Iowa-related intellectual property.
- Competitive funding to stimulate new ideas among our highly entrepreneurial faculty.

Our ability to leverage state investments can be directly linked to the creation and growth of 13 existing local startups as of FY13. We were able to invest proof of concept funding in support of 25 favorably competitively reviewed projects emanating from UI research. Fourteen of those projects are associated with startup companies, or intended startups, of which 13 remain viable and are moving forward in diverse industries including human health, disease models, and battery technology.

### **ENTREPRENEURIAL EDUCATION & BUSINESS SUPPORT PROGRAMS**

**\$133,500**

JPEC will continue its efforts to significantly enhance entrepreneurship education in Iowa and seek economic development across Iowa through unique programming and partnerships. These funds will:

- Provide community and regional entrepreneurial training through the FastTrac program and specialized seminars, speaker events and workshops to meet the needs of aspiring entrepreneurs in partnership with several entrepreneurial development organizations.
- Partner with Iowa industry and the entrepreneurial business community to identify experiential learning opportunities for students and help to facilitate internship opportunities between top UI students in JPEC's Entrepreneurial Management Institute and Iowa technology-based companies.
- Direct and coordinate initial concept and new venture funding competitions at UI. Elevator pitch competitions identify new venture opportunities and provide initial seed awards to assist aspiring entrepreneurs to further develop and enhance their business concepts. Business plan competitions provide early-stage funding to support the launch of new ventures.

Annually, JPEC helps develop and nurture approximately 44 student-led companies (75 individuals) through the Bedell Entrepreneurship Learning Laboratory. In FY 2012, state support resulted in 221 teams (408 entrants) competing in elevator pitch and business plan competitions at Iowa; over \$170,000 was awarded to 63 teams/companies (this amount included state funds and private donation supported competitions). Competition winners included recently launched ventures as well as those that are in the R&D process, prototype development, or formation stage. Additionally, JPEC provides direct consulting/mentoring services to 60-70 companies per year and oversees 50+ student/faculty consulting projects. JPEC also directs the Iowa Medical Innovation Group (IMIG). In 2011-2012 IMIG had 32 cross-discipline students leading 4 commercialization projects that originated from IMIG's RFP to the University of Iowa Hospitals and Clinics system

### **INFRASTRUCTURE INVESTMENT FOR GROWING STARTUP COMPANIES**

**\$391,500**

As companies mature, UI must provide unique facilities to foster and incubate technology based companies as well as facilitate linkage with key university core resources. The requested funds would continue to invest in technology development infrastructure to strengthen and accelerate commercialization and support critical economic development support functions associated with the UI Research Park, BioVentures Center, Technology Innovation Center and ICE. These funds will:

- Assist faculty who are considering the creation of a new venture based on their research and innovations. An experienced entrepreneur will lead a menu of services to faculty as they navigate through early stage business planning and development activities. This includes linking faculty to UI resources, external funding opportunities and identifying industry experts and business mentors.
- An Incubator company funding competition intended to stimulate original ideas and serve as leverage for other funding sources, prototyping, or new product development. Proposals will be reviewed based on their impact on economic development, the viability of their business concept, and the feasibility of their business model.

We continue to have an impact on the Iowa economy. Our incubator facilities continue to support startup companies. Despite the current economic climate, occupancy is 60% at the BioVentures Center, 51% at the Technology Innovation Center and 100% at the Bedell student incubator. Jobs for Iowan's are a major focus of the UI Research Park companies. As of FY12, there are 1881 employees with an average salary of over \$58,000. These 1881 employees report living in 169 communities in 50 Iowa counties, a regional labor-shed covering almost one-half of the State. The continued maturation of the Research Park and growth of our technology based companies provides unique opportunities for high school and community college students involved in local and regional STEM education initiatives, in partnership with Kirkwood community college and local school districts, to receive valued internship experiences.

### **MATCH**

The UI will leverage Regent's Innovation fund with a dollar-for-dollar match. Examples of funds that will be used to match include 1) funding from applied research with intellectual property potential; 2) licensing revenue; 3) incubator operation charges and lab lease rental payments; 4) revenue from land leases; 5) operating fees from JPEC; and 7) revenue from UI Research Park facilities' leases.

### **OUTCOMES AND METRICS:**

The UI will use the following metrics to measure success:

- Disclosures from faculty and students to the UIRF
- Patents and licenses associated with state economic development fund investments.
- Research and development agreements executed with Iowa companies related to state economic development funded projects.
- Companies formed and jobs created related to state economic development projects.
- Additional leveraged capital to start ups associated with state economic development funding.
- Increase in companies, and numbers of employees within the University of Iowa Research Park.
- Number of startup companies receiving assistance.
- Number of startup companies formed and reaching critical milestones.
- Number of participants participating in programs and competitions.

To: Board of Regents  
From: Sharron Quisenberry, Ph.D.  
Vice President for Research and Economic Development, Iowa State University  
RE: FY13 Regents Innovation Fund Appropriation  
Date: 16 July 2012

---

This memo contains information on Iowa State University's request for the FY13 Regents Innovation Fund Appropriation of \$ 1,050,000. We propose to allocate the money consistent with the proposal presented to the Board of Regents in FY06, but with an improved process and emphasis on pulling technologies toward commercialization.

**FY13 Funding Summary:**

SBDC		\$ 105,000
Infrastructure and Entrepreneurial Culture		\$ 245,000
ISU Research Park	\$ 75,000	
ISU PappaJohn Center	\$100,000	
Biobased Foundry Pilot Project	\$ 50,000	
Vice President for Research	\$ 20,000	
Commercialization Start up Program		\$ 500,000
Infrastructure Projects and Programs		<u>\$ 200,000</u>
<b>Annual Funding During This Period</b>		<b>\$1,050,000</b>

**System for Innovation**

The Iowa State University *System for Innovation* is focused on the transfer of university technologies into commercial applications in startup or existing companies. This System is coordinated by the Vice President for Research and Economic Development and has demonstrated significant success over the years. It recognizes that the fuel for a technology transfer/commercialization system is faculty and staff research. The funding is used to support two aspects of the System for Innovation.

**Commercialization Startup Program**

The purpose of this program is to build and sustain a pipeline of projects that will lead to increased commercial activity by new and existing Iowa companies. There is also a need to identify and foster new projects that have potential to contribute significantly to Iowa's economy. Because of funding reduction, we have eliminated the portion of the commercialization program that focused on technologies appropriate for existing companies and are focusing the resources on technologies that can lead to new Iowa companies. We propose to use the resources to pilot our new **Innovate Iowa Proof of Concept (IIPOC)** initiative. This initiative is envisioned to take the progress made with the GIVF funds and move it to the next level. Instead of just funding projects, in parallel we will put resources toward market research, mentoring and other services to accelerate the growth the new companies. These funds will be used to demonstrate the value of proof-of-concept in de-risking early-stage discovery (technology) into a validated, robust package at a meaningful pilot scale that meets performance, cost, and quality criteria for commercialization.

**Process**

Projects will be selected by an application process. Projects will be funded in \$50,000 increments, with \$100,000 possible over an 18-24 month period. Projects will be monitored for progress toward commercialization and further funding is contingent on meeting the milestones. A successful outcome of a project that is funded through the IIPOC will be companies that are ready to attract additional outside funding such as programs offered by the Iowa Economic Development Authority or angel, seed cap, or venture funds.

**Infrastructure and Entrepreneurial Culture**

This funding will support the people and activity required to grow, improve, and sustain the technology transfer/commercialization efforts at ISU. The progressive improvement is critical if the entrepreneurial culture at ISU and the *System for Innovation* is to achieve its full potential. The people are what truly make a difference in the acceleration of growth.

Unfortunately, the funding going toward infrastructure in FY13 is not enough to sustain the activity at the level of service we would like to provide, but it will provide a starting point.

**Program Evaluation**

We feel that we have done an excellent job in utilizing funds to start and grow Iowa companies. The metrics gathered to date demonstrate the impact the funds have had on technology transfer – and the fact that we can even measure an impact this soon after project completion is a success in itself. Often the investments made in research do not show the true commercial impact for 10-30 years.

We respectfully submit this request to you to support both the commercialization and infrastructure components. While we do not have specific projects identified at this time, we are actively pursuing projects that have the potential to lead to new Iowa companies and contribute to the growth and future of Iowa.

**University of Northern Iowa**  
**Regents Innovation Fund Proposal for FY 2013**  
**Total - \$900,000**

**Overview:** The University of Northern Iowa (UNI) respectfully submits this request for support from the Regents Innovation Fund (RIF). UNI proposes five innovative projects to enhance economic development in Iowa. Each project will leverage private and federal support and achieve substantial outcomes from the state investment. The five projects are:

- Economic Gardening and Entrepreneurship Outreach
- Technology Transfer and Business Incubation
- Regional Development
- Competitive and Market Intelligence Program
- National Ag-Based Lubricants Center

**Project 1 – Economic Gardening and Entrepreneurship Outreach ♦ \$300,000**

In FY13, UNI Entrepreneurship Outreach proposes to launch a statewide Economic Gardening (EG) program in Iowa to address a compelling need among smaller, locally-owned employer firms for actionable business intelligence and support. UNI will create and certify a strategic research team in accordance with the National Center for Economic Gardening to provide Stage II companies (those with 9-99 employees) with secondary market research and business intelligence.

**Area 1: The Iowa Economic Gardening Network**

In May of 2012, UNI was named the Economic Gardening Hub for the state of Iowa by the National Center for Economic Gardening. UNI has assembled an in-state team of certified EG research team professionals. These individuals will form the core team delivering services in FY13. Beginning in the fall, economic development organizations (EDOs) throughout Iowa will be asked to obtain organizational certification as economic gardening organizations. Certified EDOs will nominate Stage Two companies from their region to be served in calendar year 2013. A certified EG team will meet with the selected businesses individually and provide the business owner with business intelligence (market, industry, competitive) and recommendations associated with growth and expansion. Referring EDOs will continue to communicate with the businesses and will have access to the EG expert team for additional business intelligence as the company implements growth strategies. UNI is working with the Iowa Economic Development Authority to secure funding and additional state support for the Iowa Economic Gardening Network.

**Area 2: Reconfigure Multiple MyEntre.Net Resources into Stand Alone Program Modules**

Key resources of MyEntre.Net will be scaled and shared with EDOs throughout Iowa as web-friendly tools to assist in identifying, attracting and serving small businesses online. MyEntre.Net bi-monthly e-news and the annual statewide small business survey will continue in their current form. Three resources will be scaled in FY13, including:

**Dream Big Grow Here -** Dream Big Grow Here (DBGH) is an online contest for small Iowa businesses to win up to \$15,000 and generate statewide publicity around their small businesses. In FY12, more than 100,000 voted or competed in an Iowa contest. Ten regional economic development groups have signed on to host and fund customized DBGH contests for FY13, up

from six in FY12. Several technology enhancements will be finalized in FY13 to make the contest technology available for middle and high school contests.

**Business Concierge** - The Business Concierge provides small business owners free access to business intelligence and personal referrals to an Iowa service provider partner or source of capital. In FY13, the Business Concierge program will be built out as a plug-in technology module.

**E-Learning** - Bi-monthly webinars at MyEntre.Net are one of the most popular features of the site. In FY13, a plug-in module will be developed to make it possible for webinars to be accessible by regional EDO websites and custom designed as a local resource. Webinar hosting will be opened up to regional service providers to facilitate and market educational webinars.

### **Area 3: EntreFest!**

UNI will lead a consortium of 15-20 service providers and private partners in the delivery of the sixth annual EntreFest!, Iowa's conference for small businesses and entrepreneurs.

**Matching Funds:** Federal funds (SBA), Iowa Economic Development Authority and private sponsorships.

**Results/Metrics:** The Iowa Economic Gardening Network will be formalized, participating organizations certified, and 50-75 Stage II clients identified for service delivery during calendar year 2013. Twenty-five companies will receive expert research team services between January and June of 2013. Three of MyEntre.Net's entrepreneur resources will be transformed into customizable technology modules increasing overall small business use from 2,000 annually to 2,500. Dream Big Grow Here will expand to ten contests and attract 250 contestants.

## **Project 2 - Technology Transfer and Business Incubation ♦ \$300,000**

UNI continues to advance intellectual property evaluation and protection, commercialization of campus innovations through licensing/strategic partnerships, and new business development. One of the key goals for FY13 is to expand the culture of innovation across campus. A number of proposed services directly impact this goal, including the Innovation Incubator and a special foundry innovation project. UNI also will expand linkages between the University and the Iowa business community. Specific priorities for FY 13 are:

**Area 1: Business Incubation:** UNI will focus programming toward the Innovation Incubator on the UNI campus. Services will be expanded to include additional co-work space and innovative programming to accelerate tenant growth. Minor support will also be provided to the student business incubator, which continues to graduate successful student businesses into the regional economy.

**Area 2: Technology Transfer:** Intellectual property development at UNI continues to mature. UNI will focus on core areas of expertise for faculty and staff technology transfer. Our goals for FY 13 are to develop new technologies for commercialization, increase corporate sponsored research, license two existing technologies, start two companies using UNI technology and expand

collaborations with our fellow Regent institutions. A faculty research grant competition will be conducted to support intellectual property with the greatest potential for commercialization.

**Area 3: Special Metal Casting/Iowa Foundry Project:** For the last 22 years, the core emphasis of the Metal Casting Center has been developing technological advancements to improve the efficiency of the foundry industry. The center has been very successful in helping suppliers to the industry along with developing independent technological advancements for foundries. New technologies and innovations will be pursued during FY13 in areas such as binders, new materials, process efficiencies, materials testing and research, and specialized training.

**Matching Funds:** Federal Funds from the SBA, Iowa Economic Development Authority, Department of Energy, UNI Research Foundation and program income.

**Results/Metrics:** Occupancy at the expanded Innovation Incubator will continue to be at 100%. UNI will pursue 8-10 intellectual property disclosures, file 3 patents, commercialize 3 technologies, start 2 new companies and commercialize new foundry technologies.

### **Project 3 - Regional Development ♦ \$100,000**

Building upon its expertise and understanding of regional development, the Institute for Decision Making (IDM) will offer targeted economic development assistance to further build capacity and sustain Iowa's regional economies into the future. Specific priorities for FY 2013 are:

**Area 1: Reorganizing Iowa's Regions:** IDM will lead an effort to assess and structure Iowa's regions for economic growth. The primary emphasis in FY13 will be asset mapping to determine regional strengths and linkages and thereby outline the most appropriate regional boundaries. IDM will collaborate with the Professional Developers of Iowa on this assessment.

**Area 2: BEST of Iowa Partnership:** In partnership with the Iowa Economic Development Authority (IEDA), Regent universities, community colleges, utilities, Professional Developers of Iowa (PDI) and the Iowa Department of Education, IDM will enhance the Business Expansion & Strategic Trends (BEST) of Iowa program. BEST of Iowa supports regional and local economic development organizations in implementing or increasing the effectiveness of their business retention and expansion efforts. IDM will assist with improving data collection and analysis at state and regional levels.

**Area 3: Entrepreneurial Communities Project:** IDM will actively pursue two pilot entrepreneurial communities projects (ECP) with the UNI Regional Business Center and their MyEntre.Net program. The goal of the ECP is to build the capacity of community stakeholders towards fostering entrepreneurial development. The approach centers on four areas: 1) research and assessment, 2) education of community stakeholders, 3) development of a community entrepreneurship strategic plan, and 4) implementation of the plan and follow up. IDM staff will lend research and strategic planning expertise to this project, as well as provide customized technical assistance to meet each community's needs and foster regional collaboration.

**Matching Funds:** Program income, workforce development grants/contracts, federal funds from the Economic Development Administration.

**Results/Metrics:** IDM's collaboration with IEDA and PDI will be jointly evaluated, since this is the next step in a 2-year progression to reorganize Iowa's regions. Status of the BEST partnership and participation by regions in Iowa will be assessed. IDM will solicit and report testimonials from the two pilot entrepreneurial communities.

#### **Project 4 - Project – Competitive and Market Intelligence ♦ \$50,000**

Strategic Marketing Services (SMS) will develop and manage a competitive and market intelligence program for mid-sized Iowa companies. The purpose of devoting RIF investments to competitive and market intelligence projects is to expand economic growth across Iowa by stimulating business expansion opportunities. Accurate information is needed to make sound market entry or expansion decisions. Gathering and using data to make decisions is what SMS provides. Established businesses will be required to pay at least one-half of their project cost. SMS expects to assist at least five Iowa companies with advanced competitive and market intelligence projects. Priority will be given to businesses in the state's target industry clusters.

SMS will also consult with Iowa businesses, entrepreneurs, statewide associations and local governments to develop market research plans. In some cases, the client may wish to undertake some or all of the research activities on their own, utilizing the market research plan as a guide. The final piece of competitive and market intelligence assistance will be devoted to phase one market research feasibility assessments for the technology transfer process.

**Matching Funds:** Direct company support for the competitive intelligence projects and fees generated from other market research projects.

**Results/Metrics:** Five completed competitive intelligence projects to expand market share, increase profitability and expand the workforce and market research projects for smaller Iowa companies and new startups.

#### **Project 5 - National Ag-Based Lubricants (NABL) Center ♦ \$150,000**

UNI's National Ag-Based Lubricants (NABL) Center offers a full spectrum of customized research and biobased lubricant development capabilities. Located on the growing Cedar Valley TechWorks campus, the NABL Center offers testing clients and research partners more than 100 specific lubricant product testing methodologies per ASTM, AOCS, and other standardized specifications including elemental fingerprint analysis and biodiesel testing services. Testing clients and research partners include both small to medium local and regional industries and large, multinational corporations.

FY13 research will explore modified vegetable oils and vegetable oil derivatives for products with superior lubricity, cold temperature performance, and increased oxidative stability. The end goal of these efforts is to expand the successful use of biobased lubricants in applications currently

restricted to petroleum or synthetic oils. In addition, NABL's research plans include a significant collaboration to develop and evaluate a new microwave technology for bio-based lubricant production at the pilot scale. Three specific focus areas are:

**Area 1: Evaluate and Enhance Microwave Lubricant Production Technology**

Partner with Cedar Rapids-based companies (Marion Mixers and AMTek) to investigate the effectiveness and economics at pilot-scale production levels of a new microwave-based lubricant production technology. Measure and evaluate final product quality differences and identify major cost drivers in vegetable lubricants processes for comparison of microwave vs. traditional methods, demonstrating comparative cost advantages vs. petroleum products.

**Area 2: Specific Research of Vegetable Oil Based Products**

Fundamental research activities include ongoing development of a Continuous Oil Recirculation System (CORS) incorporating biobased oils and derivatives into the diesel engine crankcase; fundamental vegetable oil research targeting new methods of improving the inherent characteristics and fundamental properties of vegetable oils; and comparative evaluation of prevalent biobased esters to determine viability as biobased lubricants and greases - this research identifies technologies to enhance the oil's inherent characteristics.

**Area 3: Support Iowa's Biobased Products Industry**

NABL scientists will continue active participation with industry organizations and provide appropriate standardized testing methods and industry compliance to help prevent sub-par products from entering the marketplace, thus protecting consumers, end-users and producers.

**Matching Funds:** Federal funds from the U.S. Department of Energy and fees from NABL Center testing services.

**Results/Metrics:** NABL will refine the microwave lubricant production technology, provide fee-based testing services to at least five biolubricant and/or biofuels industry clients and develop or enhance at least three vegetable oil base products.